- HARMS.—*Klin. Monatsbl. f. Augenheilk.*, Vol. XLIX, Pt. 2, p. 105, 1911.
- EVANS, P. JAMESON.—Use of radon in the treatment of metastatic carcinoma of the choroid. *Brit. Jl. Ophthalm.*, Vol. XXI, p. 496, 1937.
- Radon treatment of secondary carcinoma of the choroid. Post-mortem observations. *Brit. Jl. Ophthalm.*, Vol. XXII, p. 739, 1938.
- KREIBERG, W.—*Zeitschr. f. Augenheilk.*, Vol. LXXIV, p. 362, 1931.
- LAFON, CH.—*Rec. d'Ophthal.*, Vol. XII, p. 193, 1908.
- LAGLEYZE.—*Arch. de Oftal. Hisp.-Amer.*, 1914.
- LAGRANGE.—*Ann. d'Ocul.*, Vol. CXIX, p. 56, 1898.
- MARSHALL, C. D.—*Ophthalm. Hosp. Rep.*, Vol. XIV, p. 415, 1897.
- MOORE, R. FOSTER and STALLARD, H. B.—*Brit. Jl. Ophthalm.*, Vol. XVI, p. 532, 1932.
- PARSONS, J. H.—*Ophthalm. Hosp. Rep.*, Vol. XV., p. 206, 1903.
- PENMAN, G. G.—Private Communication.
- PERLS.—*Virch. Arch.*, Bd. XLVI, p. 437, 1872.
- ROWAN, J.—*Trans. Ophthalm. Soc. U.K.*, Vol. XIX, p. 103, 1899.
- STALLARD, H. B.—Six cases of metastatic carcinoma of the choroid. *Proc. Roy. Soc. Med.*, Vol. XXVI, p. 1042, 1933.
- USHER, C. H.—*Brit. Jl. Ophthalm.*, Vol. VII, p. 10, 1923.
- WEEKS, J. E.—*Trans. Amer. Ophthalm. Soc.*, Vol XIV, p. 326, 1915.

TRACHOMA

(Some experimental data with a clinical interest from the records of a combined aetiological investigation by various members of the Government Ophthalmic Hospital, and the King Institute of Preventive Medicine, Madras, 1935, 1936, 1937)

BY

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IN the issues of the *Brit. Jl. of Ophthalm.*, of June, 1935, and April, 1937, I discussed some of the difficulties in connection with investigations into the aetiology of trachoma, referred to an attempt to find a solution by cultural methods using the Woodruff Goodpasteur technique, recorded an apparent initial success with egg inoculation, and finally intimated that the results of our cultural work were inconclusive.

Details of the earlier work were recorded by C. G. Pandit, Wright, Sanjiva Rao and Satyanathan (1935).

Shortt questioned the nature of the growths we obtained on the chorio-allantoic membrane with unfiltered trachoma material. They were not as satisfactorily uniform in their behaviour and characters as might have been expected with specific virus implantations when carried on in sub passage.

From February, 1935 to February, 1937, the investigations were continued in collaboration with Shortt, Pandit, Sanjiva Rao and Vaidyanathan. Pandit was routinely sub passaging vaccinia virus during this period and Shortt, Sanjiva Rao and Swaminath isolated the viruses of Sandfly Fever and Dengue. A well established routine for virus isolation and investigation was thus in being at the King Institute under Col. Shortt's direction.

For the convenience of readers it may be repeated here that the first phase of the research—detailed in 1935—was mainly concerned with showing that unfiltered trachoma material reproduced the disease in the normal human conjunctiva and produced lesions on the chorio-allantoic membrane of the chick. The material was infective to the normal human conjunctiva in seven consecutive instances and although free from demonstrable bacteria it produced growths on the egg in 10 out of 18 inoculations, which were sub passaged in 8 instances. The pulped membrane growths did not reproduce the disease in the normal human conjunctiva.

This fact, *alone*, however, did not constitute evidence against the pocks being due to the active agent of trachoma since a virus may alter its pathogenicity in culture.

The growths were unsatisfactory as compared with those of known origin in various ways (histopathological, etc.) which need not be gone into here. Similarly growths were produced by non-trachomatous material and chemical irritants, which however were not passageable.

Our attempt to isolate a virus as the active infective agent of trachoma was thus inconclusive.

In the second phase of the research, February, 1935, to February, 1937, the capacity of unfiltered trachoma material to infect the human conjunctiva was again tried out and compared with that of material in similar dilution filtered through collodion (Elford) membranes. In a few instances filtered material was implanted on the chorio-allantoic membrane with a view to isolating a filter passing virus.

In the issue of this journal for April, 1937, I discussed this work in a general way. It was intended then to make a combined communication incorporating the full details of the investigation at a later date. Since this second stage of the research was again inconclusive in its attempt to establish a virus as the aetiological agent in trachoma, Shortt and Pandit decided against a detailed combined publication. They recently intimated that it would be a pity not to publish the more useful portions of the records, which have a considerable clinical interest and value, and suggested that I should do so. The appended tabular statements are therefore presented which speak for themselves.

In contrast with our previous experience we only succeeded in infecting the normal human conjunctiva seven times out of 23 attempts. This observation shows how our previous run of seven positives out of seven might have led one astray had not larger numbers been employed. In 20 attempts on 10 individuals filtered material gave a negative result.

Taking the previous series with the present one, 30 attempts on 22 individuals gave 14 positive results with unfiltered material. Col. Shortt remarked with reference to statements 1 and 2 that the numbers of individuals were too small to say that there was even a probability that failure in any case was due to either (a) immunity in recipient, (b) donor not trachomatous, (c) insufficient dosage, (d) donor not in an infective stage.

In view of the many factors involved and the various possible causes of failure with both filtered and unfiltered material it cannot be concluded from the material presented that the agent is not a filter passer.

The effect of dilution on a virus suspension is most important, as exemplified in Burnet's method of titrating a virus suspension by progressively diluting the suspension, inoculating eggs, and counting the pocks. Loss of virus also occurs on the membrane during filtration.

Clinically the number of failures is in line with experience. Trachoma is not ordinarily a very infectious disease. From the nature of the condition one would expect the agent to be feebly invasive although in its selected habitat it is most resistant to dislodgement.

A point of therapeutic interest arising from the enquiry is that in two experimentally produced cases radium failed to influence the disease.

Radium sulphate encased in 0.5 m.m. curved platinum needles of 10 m.m. active length in a total of 32 m.m., was used.

These were imbedded in paraffin wax shells moulded to fit over the globe inside the lids. The needles were nearer the anterior surface of the shell. This was the technique I usually employed in treating anterior portions of the globe conjunctiva and lids, *e.g.*, epithelioma of the limbus. The dosage was 40 milligram hours in one case and 1,000 mgh. in the other.

Cultivation on the egg.—We arranged this series of observations to show that filtered material transmitted the disease to the human conjunctiva and produced lesions on the chorio-allantoic membrane. The high rate of failures with unfiltered material and complete failure with filtered material upset our prearranged plans, so that few attempts at cultivation were made.

Dr. Pandit made inoculations with unfiltered material in 13

instances on a variable number of eggs; in four instances some of the eggs showed scanty pocks which could not be carried forward in subculture.

Cultivation with filtered material, which had failed to infect the normal human conjunctiva were made in three instances and with filtered material which had not been thus tried out in one case. The result is shown in the table.

These further attempts to cultivate a virus are inconclusive, but in view of the fact that both in this series and the series already published, certain definite lesions were produced with trachoma material which may have been due to a trachoma virus, it is desirable that work on these lines should be repeated.

In this investigation we did not arrange to correlate our results with the microscopic findings in the donors, but sufficient evidence was forthcoming by intermittent checking to show that we were dealing with cases in which H.P. inclusions were frequently present.

It would appear that under experimental conditions, gross contamination of the normal human conjunctiva with material from the conjunctiva of persons suffering from a condition judged to be trachoma by accepted clinical and microscopical standards, does not reproduce the condition with the frequency which orthodox clinical and epidemiological teaching might lead one to expect.

In the investigation of this disease, observations—whether clinical or experimental—are so liable to fallacious interpretation that unless very carefully controlled they are likely to lead to erroneous conclusions.

Correct conclusions cannot be drawn from insufficient numbers of observations. This experimental axiom often appears to be overlooked by clinical and experimental observers in connection with trachoma investigations.

The nature of trachoma, perhaps more accurately regarded as a congeries of trachomatoid affections of the conjunctiva, still remains obscure. There is widespread divergence of opinion in clinical diagnosis, and empirical treatment is often more dangerous than the condition which it attempts to relieve.

In such circumstances the isolation of a causative agent or agents is of the greatest importance.

REFERENCES

- RAO, R. S., PANDIT, C. G. and SHORTT, H. E. (1936).—*Ind. Jl. Med. Res.*, Vol. XXIII, p. 857.
 SHORTT, H. E., RAO, R. S. and SWAMINATH, C. S. (1936).—*Ind. Jl. Med. Res.*, Vol. XXIII, p. 865.
 VAN ROOYEN and RHODES (1940).—*Virus Diseases of Man*.

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1935 (SERIES B)—STATEMENT I

Unfiltered

Unfiltered material from trachoma cases was instilled into the normal human conjunctiva of ten individuals on thirteen occasions with a *Positive* result in five individuals.

The conjunctival material was collected and instilled as in the 1934-35 experiments* but the trachoma tissue juice was added to broth and thus diluted, when collecting material for comparative unfiltered and filtered experiments, *viz.*, Serial Nos. 6, 7, 8, 9, 10, 11, 12.

Numbers within brackets in Column 2 are those given to the same individual on a previous or subsequent occasion, *e.g.*, No. 20 as No. 16 gave a negative result on a prior date. No. 42 as 41 (Statement IV), gave a negative with heated material.

Serial No. of observation.	Experimental No. of recipient.	Experimental No. of donor or pooled material from unnumbered cases.	Date	Result: Pos. or Neg.	Remarks
1.	7	5	9/3/35	-	
2.	16	5	2/4/35	-	In view of the fact that this case was subsequently infected from a definitely experimentally produced trachoma, it may be doubted whether donor 5 had trachoma although clinically very definite, —a comparatively early case with bursting follicles and pannus.
3.	20 (16)	A28	10/4/35	+ 4th day 13/4/35	A28 an experimentally produced trachoma case of three months' standing. The earliest onset in our 1934 experiments was the fifth day. Whether it can be assumed that No. 20 (as No. 16) was free from trachoma on the 8th day is doubtful. In view of the fact that she "showed" on the 4th day after her second implantation, a carry-over infection from the first instillation might be postulated. Our previous experience however did not lead us to think of an incubation longer than 7 days, and we were short of recipients, hence she was used.
4.	40	38, 39	19/6/35	+ 6th day 25/6/35	
5.	42 (41)	40	5/7/35	+ 7th day 11/7/35	Fellow eye self infected on 20th day. As 41 this individual gave a negative result with heated trachoma material. (See Series A and B, Statement I).

* *Ind. J. of Med. Res.*, Vol. XXIII, pp. 475-476, October, 1935. (The cases referred to in this publication are referred to as Series A).

1935 (SERIES B) STATEMENT I—*continued*

Serial No. of observation.	Experimental No. of recipient.	Experimental No. of donor or pooled material from unnumbered cases.	Date	Result: Pos. or Neg.	Remarks
6.	43 (56)	42, 45, 46	20/7/35	-	It is possible that dilution was responsible for failure here, since 150-160 c.mm. of juice was diluted with 3 c.c. broth. (See Statement 2, No. 47 and 50: same remark applies). Similar dilution did not however prevent a take in Serial Nos. 10 and 11.
7.	49 (55, 44)	42, 45, 46	20/7/35	-	
8.	55 (49, 44)	Pooled material from group of six out-patients	3/8/35	-	
9.	56 (48)	do.	3/8/35	-	
10.	59 (43, 50, 54)	60-61, 62	17/8/35	+ 8th day 24/8/35	No. 59 proved negative on three previous occasions with <i>filtered</i> material (see Statement II). Fellow eye affected on the 15th day. The filtered material from donors 60, 61, 62 gave a negative result. (See Statement II).
11.	66	68, 69, 71, 72, 73	2/11/35	+ 7th day 9/11/35	The filtered material from this group of donors gave a negative result (see Statement II).
12.	70	do.	2/11/35	-	In view of the fact that 66 was positive with identical material under identical conditions; was 70 immune? The opportunity of testing this was not forthcoming.
13.	67b (67a)	66	16/12/35	-	67b received undiluted material from a positive experimentally induced case of some six weeks' standing. Presumably the individual was resistant to infection.
10 individuals			5+ 8-		Total 13 occasions

In 1934-5 Series A instillations as above resulted in transmitting the disease in every case (7 out of 7). The present series shows the fallacy of taking our previous figures at their face value, and drawing conclusions from small numbers of observations.

The fact that in Series B we could not be certain of infecting the normal human conjunctiva with material from the conjunctivae of cases indistinguishable from trachoma raised practical difficulties in the investigation, which was originally planned to determine the influence of filtration through collodion membranes.

Were the donors non-infective or non-trachomatous, or were the recipients resistant to infection, or both? Was the dosage insufficient? The figures are too small to constitute conclusive evidence either way.

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1935 (SERIES B)—STATEMENT II

Filtered

Filtered material from trachoma cases was instilled in the normal conjunctival sac of five individuals on nine occasions with *Negative* results.

The conjunctival material was collected and instilled as in the 1934-5 experiments with this difference, that it was mixed with $1\frac{1}{2}$ -2 c.c. of broth or saline for purposes of filtration.

Numbers within brackets in Column 2 are those given to the same individual on a previous or subsequent occasion, e.g., 50 below, as 43, gave a negative result with filtered material on a prior date, 43 was employed as a recipient again under No's. 50, 54, 59.

Serial No. of observation.	No. of recipient	No. of donor or pooled material from unnumbered cases.	Date	Result	Elford collodion membrane filter a.p.d.	Remarks
1.	43 (50, 54, 59)	40, 45, 46	6/7/35	Neg.	1.8 μ	This a.p.d. should let free virus pass but keep back any known bacteria.
2.	44 (49, 55)	40, 45, 46	6/7/35	"	"	
3.	47 (57, 58)	42, 45, 46	20/7/35	"	"	Conjunctival material diluted with 3 c.c. of broth.
4.	50 (43, 54, 59)	42, 45, 46	20/7/35	"	"	Do.
5.	54 (43, 50, 59)	Pooled material from group of six out-patients	3/8/35	"	"	
6.	57 (47, 58)	do.	3/8/35	"	"	
7.	58 (47, 57)	60, 61, 62	17/8/35	"	"	
8.	65	68, 69, 71, 72, 73	2/11/35	"	"	Egg inoculations negative.
9.	67a (67b)	68, 69, 71, 72, 73	2/11/35	"	"	This case subsequently proved resistant to infection with undiluted material from an experimentally induced case.
5 individuals			9 occasions			

Apparently trachoma material which under similar conditions of experiment resulted in infecting some normal human conjunctivae when instilled in the unfiltered condition, failed to infect when filtered. Some of these failures may have been due to resistance of the recipient, *e.g.*, No. 67A, but hardly all. One case which failed three times, 43, 50, 54 above, took with unfiltered material, see No. 59, Statement I.

Dilution:—Not less than 150 c.mm. of conjunctival juice follicle contents, etc., excluding lacrymal secretion in not more than 2 c.c. of broth or saline unless otherwise stated.

IMPLANTATION OF TRACHOMA MATERIAL ON THE
NORMAL HUMAN CONJUNCTIVA

1935 (SERIES B)—STATEMENT III

Comparative statement of result of inoculations of trachoma material unfiltered and filtered on normal human conjunctivae from some donors. (Derived from Statements I and II).

Serial No. of Experi- mental Group.	No. of donor or pooled material from unnum- bered cases.	No. of recipi- ent	Trachoma material		Result: + Pos. - Neg. ? Doubt- ful	Remarks
			Unfilt'd	Filt'd		
1.	40	42	U		+	The pool included material from 40, a known trachoma infective in a three-fold dilution with other unproven but clinically trachomatous material.
	40, 45, 46	43		F	-	
	40, 45, 46	44		F	-	
2.	42, 45, 46	48	U		-	It is possible that dilution was responsible for failure here since 150-160 c.mm. of juice was diluted with 3 c.c. of broth.
	42, 45, 46	49	U		-	
	42, 45, 46	47		F	-	
	42, 45, 46	50		F	-	
3.	Pooled material from six out-patients	55	U		?	
	Do.	56	U		?	
	Do.	54		F	-	
	Do.	57		F	-	
4.	60, 61, 62	58		F	-	No lesions on egg with filtered material (see table). Negative to filtered material on three previous occasions.
	60, 61, 62	59	U		+	

1935 (SERIES B) STATEMENT III—*continued*

Serial No. of Experimental Group.	No. of donor or pooled material from unnumbered cases.	No. of recipient.	Trachoma material		Result: + Pos. - Neg. ? Doubtful	Remarks
			Unfilt'd	Filt'd		
5.	68, 69, 71, 72, 73 do.	65 67a		F F	- -	This case subsequently proved resistant to known infective unfiltered material (<i>vide</i> Statement I). In view of the fact that 66 was positive with identical material under identical conditions, 70 was possibly immune. The opportunity of determining this was not forthcoming.
	do.	66	U		+	
	do.	70	U		-	

1. This statement shows that in four comparable experimental groups the filtered material gave negative results, whilst the unfiltered gave some positive results. In the fifth, unfiltered gave a positive, filtered a negative; but in the latter case there was a possibility of greater dilution. (Serial No. 1 above).

2. Without further evidence the experiments suggest that filtration (1.8μ a.p.d.) may exclude the infective agent. Thygeson and Proctor appear to have infected five sphinx baboons with material filtered through the Elford membrane of 0.75μ a.p.d.

3. A negative result with filtered material on a single occasion cannot be regarded as evidence that filtration excludes an infective agent, present in the unfiltered suspension. Several negatives in an individual followed by a positive to unfiltered material is more like evidence. This occurred in 59 above (see Statement II, Serial No's. 1, 4, 5).

4. The same dilution was employed in all cases where the filtered and unfiltered material was obtained from the same donors. Membrane filters (Elford) of 1.8μ a.p.d. were used.

5. The loss of titre on filtration might account for the negatives in the filtered series in view of the number of negatives in the unfiltered series; although a considerable loss of virus can hardly be postulated if filtration through membranes 0.75μ a.p.d. allowed of positive results (see Note 2).

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1935 (SERIES A and B)—STATEMENT I

Effects of Heat on Unfiltered Material

Unfiltered heated material from trachoma cases was instilled into the normal conjunctival sac with *Negative* result.

Conjunctival material was collected and instilled as in 1934-35 experiments.

Effects of heat on trachoma material heated to 120°F. for two minutes.

Numbers within brackets (in Column 2) are those given to the same individual in a previous or subsequent occasion, *e.g.*, No. 30a, as 29a, gave a negative result with heated material on a prior date.

Serial No.	No. of recipient.	No. of donor or pooled material from unnumbered cases.	Date	Trachoma material : Unheated or Heated	Result : + Pos. -Neg. ?Doubtful.	Remarks
1.	41 (42)	38, 39	19/6/35	H	-	The negative result is of course not necessarily connected with the heating since there are other factors to be reckoned with, but the individual was subsequently infected by unfiltered material (see Statement I, Serial No. 5).
2.	40	38, 39	19/6/35	U	+	See Statement I.
3.	A29 (A30)	Pooled material from four out-patients including one experimentally induced case, No. 25a	5/2/35	H	-	This patient as No. 30a subsequently was infected with unheated material from different source.
4.	A30 (A29)	A28	19/2/35	U	+	This case is recorded in Series A 1935, and must not be included in the totals of Series B, C, and D.

The above experiment is inconclusive.

It had a bearing on a method of treatment under trial ; hot lavage. Isolated instances like the above can hardly be taken as indicating that a 120°F. for two minutes destroys the active agent of trachoma. In any case lavage at this temperature did not appear practicable although the use of a modified thermophore had possibilities.

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1936 (SERIES C)—STATEMENT I

(Supplementary to Statement III, Series B, 1935)

Comparing the result of filtered and unfiltered material and showing that a negative result with filtered material may not necessarily be due to the filtration.

The numbers in brackets are those given to the same individual in a previous or subsequent observation (*e.g.*) 10 as 3, gave a negative result with filtered material on a prior date.

Serial No. of Group	No. of donor or pooled material from unnumbered cases.	No. of recipient.	Date	Trachoma material		Result: + Pos. - Neg.	Remarks
				Filt'd	Unfilt'd		
1.	Pooled from 11 out-patients.	1	26/3/36		U	+	Fellow eye affected on the 13th day.
	Do.	2	26/3/36		U	+	Do. do.
	Do.	3	27/3/36	F		-	Elford membrane a.p.d. 1'8 μ was used for filtration. Lesions on egg with filtered material +. Subpassaged once. (See table).
	Do.	4	27/3/36	F		-	
2.	6 to 9	10 (3)	15/4/36		U	-	Material from these donors filtered through Elford membranes 0'6 μ a.p.d. used for egg inoculations. No lesions with either filtered or unfiltered material. (See table).
	6 to 9	11 (4)	15/4/36		U	-	
3.	Pooled from 5 out-patients	15 (3, 10)	12/5/36		U	-	
	Do.	16 (4, 11)	12/5/36		U	-	
Four individuals				Eight occasions			

The resistance of 3 and 4 to subsequent implantation of unfiltered material may have been influenced by many factors, *e.g.*, the possible effect of a preliminary subinfective dose, natural immunity, insufficient dose, non-infective stage of donor, etc.

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1937 (SERIES D)—STATEMENT I

Unfiltered trachoma material was instilled into the normal conjunctiva in three instances, and filtered material in five instances with *Negative* result.

Material:—Six patients with trachoma were available as donors.

After two minutes preliminary wash with normal saline, cocaine anæsthesia and novocaine infiltration 2 per cent., that part of the conjunctiva which appeared most affected comprising the fornix and the upper third of the tarsal membrane was excised from one eye of each patient (Heisrath's combined excision).

The excised fornices were washed in sterile normal saline and within an hour were ground into emulsion with about 7 c.c. of broth. The emulsion thus prepared is the "unfiltered" material.

The filtrate of this emulsion through an Elford collodion membrane (0.68 μ a.p.d.) is the "filtered" material.

Instillation:—Four patients were available as recipients.

Within three hours of removal of the first trachomatous material from the donors, the preparations were instilled into the eyes of the recipients as shown below. Repeated instillations were made, 3 or 4 in each eye, several drops of material being instilled each time and light scarification produced with the tip of the pipette in the instances noted in the table, on the same site in each case.

Experiment called off on the 16th day

Date	Patient recipient	Eye	Material	Result	Remarks
13/1/37	D1	Right Left	Unfiltered Unfiltered	Negative Negative	Right eye very slightly scarified on temporal tarsal surface.
13/1/37	D2 (D5)	Right Left	Unfiltered Filtered	Negative Negative	Eye protected with shield to prevent cross inoculation. Slight scarification of both eyes.
13/1/37	D3	Right Left	Filtered Filtered	Negative Negative	Right eye slightly scarified.
13/1/37	D4	Right Left	Filtered Filtered	Negative Negative	Both eyes slightly scarified.

It was expected that a positive result would be obtained with the unfiltered material in one or more instances in view of the method adopted to concentrate the infective agent and the trauma to the recipient conjunctiva.

IMPLANTATION OF TRACHOMA MATERIAL ON THE NORMAL HUMAN CONJUNCTIVA

1937 (SERIES D)—STATEMENT II

Unfiltered material collected as in the 1935 report* by washing the conjunctiva of the trachomatous donor for two minutes with normal saline and, without cocainisation, lightly stroking the conjunctiva of the everted lid in the neighbourhood of the upper border of the tarsus, till about 50 c.mm. of tissue juice was obtained. This was instilled direct into the conjunctival sac of the recipient with light scarification on one side as in the preceding statement in this series.

Experiment called off on the 20th day

Date	Patient recipient	Eye	Material	Result	Remarks
5/2/37	D5 (D2)	Right	Unfiltered from a single trachomatous donor	Negative	Slight scarification of conjunctiva as in the preceding statement in this series. The patient possibly was resistant to trachoma.

In view of the negative result with pooled material—(Series D, Statement I) an attempt was made to infect D2 by the technique which formerly had given seven successive positives (1935 report).

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EGG INOCULATION WITH FILTERED MATERIAL

Inoculations with filtered material which had failed to infect the normal human conjunctiva, were made in three instances and with filtered material which had not been thus tried out in one case. The result is shown in the table.

TABLE

Source of material. Pool or Donors.	Collodion membrane a.p.d.	Lesions.	Number of passages		
			1	2	3
68. 69. 71. 72. 73. ...	1·8μ	Nil			
Pooled from II outpatients. See Series C, Statement I	1·8μ	Definite	8 8 2	3 2 2	3 1 0
6 to 9. Series C, State- ment I	0·6μ	Nil	12 7 0		
Pooled material from out- patients not used for in- oculation of the normal human conjunctiva ...	1·1μ	Definite	4 2 2	3 0 0	

The figure on the left above the line indicates the number of eggs inoculated, that on the right the number of eggs which were good. The figure below the line indicates the number of eggs which showed definite lesions.